

REMARKS/ARGUMENTS

Claims 61-65, 67, 68, 70-84 and 86-99 are pending in the application. Claims 90-99 are new claims added with this amendment. The new claims are fully supported by the specification as filed, such as, in paragraphs 43, 44, 59, 61, 63, 65, 66, 67, the figures, and the original claims. Applicants respectfully submit that no new matter is introduced by these amendments.

The drawings have been objected to as not showing every feature of the claimed invention. More specifically, the Examiner alleges that the drawings do not illustrate a filter element made from a single piece of material. This rejection relates only to claim 66, which has now been canceled in order to expedite prosecution. Accordingly, Applicants respectfully request reconsideration and withdrawal of this objection to the drawings.

Claims 61, 64-68, 70-72, 75, 76, 78, 81-83, 87, and 88 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 3,390,686 to Irby Jr. *et al.* in view of U.S. Patent No. 4,046,063 to Berger and U.S. Patent No. 5,549,124 to Dorsey. Similarly, claims 62, 77, 79, and 89 stand rejected as obvious over the above-referenced combination of references, further in view of Applicants' allegedly admitted prior art. Still further, claims 63, 73, 74, 84, and 86 stand rejected over the above-referenced combination of references, further in view of U.S. Patent No. 5,365,951 to Arterbery *et al.*

In all of the above rejections, the Examiner relies upon the Irby Jr. reference as disclosing a cavity containing a capsule. The Examiner relies on the Berger reference as disclosing a filter with a cylindrical end and a conical end composed of inner and outer filter materials. The Examiner relies upon the Dorsey reference as disclosing a capsule and a cavity. The Examiner concludes that one of ordinary skill in the art would find it obvious to combine these references to form the claimed filter arrangement. Applicants respectfully traverse all rejections.

To establish a *prima facie* case of obviousness, according to a test predominately used by the courts, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when

combined) must teach or suggest all the claim elements. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

With regard to the Supreme Court's decision in *KSR Int'l. Co. v. Teleflex, Inc.*, 550 U.S. ___, 82 USPQ2d 1385 (2007), it is noted that the Court did not dismiss the usefulness the well-established "teaching, suggestion, or motivation" test set forth above, but merely cautioned against its rigid application. The Supreme Court in *KSR* commented that the Federal Circuit "no doubt has applied the test in accord with these principles [set forth in *KSR*] in many cases." *Id.* at ___, 82 USPQ2d at 1396. However, the Supreme Court also opined that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. . ." *Id.* at ___, 82 USPQ2d at 1395-96. Regardless of the precise test used, the Court, quoting *In re Kahn*, cautioned that "'[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.'" *Id.* at ___, 82 USPQ2d at 1396.

As initial point, Applicants respectfully submit that one of ordinary skill in the art would have absolutely no motivation to combine the filter structure of Berger with the teachings of either the Dorsey or the Irby Jr. references. As noted by the Examiner, the Berger reference discloses a filter arrangement including an inner member that defines a cavity and an intermediate member 32 surrounding the inner member. The intermediate member providing a cylindrical outer surface. The inner member 28 and the intermediate member 32 have a different shape and different properties, but are intended to work in tandem to provide specific smoke filtration properties. In particular, the Berger reference notes that the inner member 28, by virtue of being crimped at one end and preferably formed using fibers that are finer than the fibers of tow of the intermediate member 32, offers more resistance to the passage of smoke than the intermediate member. See column 3, lines 60-68 and column 4, lines 43-66. The use of the two different members in a co-axial arrangement will, according to Berger, result in a filter where a majority of the smoke passes through both the inner and intermediate members as well as the

internal cavity before reaching the mouth of the user. The Berger reference stresses that the filtering material of the intermediate member offers less resistance to passage of smoke than the filtering material of the inner member, but also notes that the short radial path to the internal cavity through the somewhat denser filtering material of the inner member ensures that smoke will pass through both the intermediate and the inner member (see column 4, lines 43-66).

While there is no reference in Berger regarding the inclusion of frangible capsules within the inner cavity of the filter described therein, the Examiner opines that one would find it obvious to include such materials within the cavity in order to provide flavor delivery in combination with the “unique air flow” disclosed in Berger. Applicants respectfully traverse this statement as the Examiner has not explained why one of ordinary skill in the art would still view the filter design of Berger as capable of providing the “unique air flow” disclosed in Berger when the cavity is filled with some additional material. In fact, the opposite impression is given by Berger, since as noted above, the Berger patent specifically mentions that the presence of the cavity, and the “relatively high suctioning” produced by the cavity contribute to the filtration characteristics of the filter design. *Id.* Still further, the Berger reference notes that one of the important filtration qualities relates to the pressure drop across the filter element (see table at top of column 7). One of ordinary skill in the art could not be confident that the modified filter design proposed by the Examiner would still provide certain air flow characteristics taught in Berger, including certain pressure drop characteristics. In particular, it is not at all clear that one of ordinary skill in the art would view the modified filter design proposed by the Examiner as capable of providing the same important air flow characteristics described in Berger with a frangible capsule lodged within the internal cavity. Accordingly, Applicants respectfully submit that the Examiner has provided no support for the statement that one of ordinary skill in the art would view the modified design suggested by the Examiner as meeting the “unique air flow” characteristics disclosed by Berger. For at least this reason, Applicants respectfully request reconsideration and withdrawal of all rejections relying on this reference.

Still further, Applicants respectfully submit that nothing in the Irby Jr. or Dorsey references would suggest or motivate the combination suggested in the office action. In particular, Applicants note that Irby Jr. reference illustrates exactly two embodiments of the

invention described therein. One embodiment, set forth in Figure 1, involves the presence of frangible capsules containing a liquid embedded in a filter material along with intermixed carbon particles. This embodiment of the invention clearly bears no resemblance to the present invention. The only other embodiment described in the Irby Jr. reference and mentioned by the Examiner is set forth in Figure 2. The Irby Jr. patent describes the embodiment of Figure 2 as a configuration useful when using a sponge-type filler. The patent describes the embodiment of Figure 2 as a sponge compressed into a cylinder with a capsule containing a slurry of carbon particles suspended in a liquid within the cavity of the cylinder. The patent specifically notes that this embodiment, when the capsule is ruptured, results in the liquid causing the sponge to expand to fill the void left by the ruptured capsules. This is consistent with the underlying principle of the Irby Jr. filter configuration, which is ensuring that the liquid released from the capsules is entrained within the filler material of the filter (see column 2, lines 62-70). Note that the Examiner characterizes this embodiment of Irby Jr. as a “coaxial” filter element with an inner and outer material. This is clearly erroneous. The filter of Fig. 2 of Irby Jr. is only described as a cylindrical sponge material with a capsule therein – there is no inner and outer material in a coaxial arrangement.

The Examiner relies upon the embodiment of Figure 2 as suggestive of placing the frangible capsule of Irby Jr. within the cavity of Berger. However, it is clear that the Berger reference is not utilizing a sponge material in the filter configuration described therein. Instead, preferred materials are described as including cellulose acetate tow or other filamentary tow. Nothing resembling a sponge-type material is described in Berger, nor is there any reason to believe that a sponge-like material would function in the desired manner in the filter design of Berger. However, this creates a clear tension with the teachings of Irby Jr. The Irby Jr. reference clearly stresses that the embodiment of Figure 2 is only adapted for use with a sponge filter material that can be expected to expand to fill the void left by the ruptured capsule. This is not a function that one of ordinary skill would view as compatible with the filamentary tow materials of Berger. Those types of materials would not be expected to act in the same manner as a sponge material and, in fact, it is clear from the Irby Jr. reference that such materials would not be expected to function appropriately in the embodiment of Figure 2. This is clearly

understood because the Irby Jr. reference notes that cellulose acetate tow can be used in other embodiments of the invention, such as the embodiment of Figure 1. For at least this reason, there is absolutely no reasonable basis for combining the teachings of Irby Jr. with the teachings of the Berger reference. For at least this additional reason, Applicants respectfully request reconsideration and withdrawal of all rejections relying on this combination.

Applicants also respectfully submit that there is a similar lack of any reasonable basis for combining the teachings of the Dorsey patent with the teachings of the Berger patent. The limited teachings of the Dorsey patent describe a capsule containing water placed within a cigarette paper sleeve adjacent to a mouth-end section of filter material and a segment of tobacco material. The clear intent of the filter design of Dorsey is for the contents of the ruptured capsule to wet or dampen the tobacco within the filter element of Dorsey, for the purpose of using the wet tobacco to act as a filtration material. Since the clear intent in the Dorsey patent is to have the contents of capsule wet the tobacco, there would be absolutely no motivation for one of ordinary skill in the art to place the capsule of Dorsey within a cavity surrounded by multiple layers of cellulose acetate tow or other filamentary materials. It would be understood that such materials could absorb the contents of the capsule, which would be counterproductive to the stated goal of the Dorsey filter element, which is to dampen the tobacco, not a filamentary tow. Accordingly, one of ordinary skill in the art relying on the Dorsey patent would not be motivated to modify any filter design with anything other than a cavity surrounded by a cigarette paper containing the frangible capsule. Such a filter design would clearly not fall within the scope of the present claims. In particular, Applicants traverse the Examiner's allegation that Dorsey teaches that liquid within a capsule is intended to be "deployed" to a filter material in addition to a tobacco section of filter. The Dorsey patent is completely silent as to the need or the desire to have the liquid contents of the capsule absorb into a tow filter material. The only desirable absorption described in the Dorsey patent is absorption of the liquid into the tobacco charge of the filter element. For this additional reason, Applicants respectfully request reconsideration and withdrawal of all rejections relying on this combination.

Applicants also submit that even if one were to modify the teachings of Berger with the teachings of Irby Jr. or Dorsey, the resulting combination would still not provide a cigarette as

claimed in any claim of record. Independent claims 61 and 78 recite that the filter element is sufficiently flexible to be squeeze to break the capsule while also being sufficiently resilient to return to a substantially cylindrical shape and maintain said cavity after being squeezed. Similarly, new independent claim 90 recites that the segment of the filter element described therein is sufficiently flexible to be squeezed to break the capsule while also being sufficiently resilient such that the segment returns to a substantially cylindrical outer shape and said cavity returns to its original defined shape after being squeezed. Thus, all claims of record recite that the filter element cavity is designed so that following squeezing to break the capsule, the cavity returns to its original shape. In other words, the materials defining the cavity are resilient enough to maintain the cavity after squeezing. There is nothing in Dorsey or Irby Jr. to teach or suggest such an embodiment and, in fact, the teachings of both references strongly suggest that such a design should not be utilized. Specifically, the only embodiment of Irby Jr. relied upon by the Examiner, as noted above, is directed to a sponge-type filler used as a filter element. The Irby Jr. reference recites that the sponge material must expand and fill the void left by the ruptured capsule. In other words, the cavity will no longer exist once the capsule is ruptured. This is consistent with the stated purpose of the Irby Jr. filter design which is to ensure that the released liquid is entrained within the filler material and prevented from passage into the tobacco portion of the cigarette, into the smoker's mouth, or into an adjacent section of a multiple-component filter assembly. Again, attention is directed to column 2, lines 62-70. Accordingly, one of ordinary skill in the art would read the teachings of Irby Jr. as requiring the use of a capsule, as shown in Figure 2, within a segment of a filter that is sponge-like and which would expand to fill (and thus destroy) the cavity after rupture of the capsule. Such a design is clearly not contemplated or encompassed by the present claims.

With respect to the Dorsey patent, one of ordinary skill in the art would understand the Dorsey patent as requiring the use of the water-containing capsule encompassed only within a heavy cigarette paper sleeve as described in the patent. The reason for this is quite clear, as the intent of the Dorsey patent is to infuse the tobacco section of the filter with the contents of the crushable capsule rather than have the contents of the capsule absorbed into other portions of a filter. Accordingly, one of ordinary skill in the art would be expressly disinclined to combine the

teachings of the Dorsey patent with the Berger patent, which would not result in preservation of the ability of the contents of the capsule to release primarily into the tobacco charge of the filter element. It is also noted that the Dorsey patent specifically recites that the filter element contain a tobacco-containing section 4. The tobacco-containing section 4 is not the “tobacco rod,” which is instead cigarette portion 5 connected to the filter element. Accordingly, the teachings of the Dorsey patent would also not result in the claimed filter arrangement of claim 61 because the breakable capsule would not be disposed in a cavity proximal to the tobacco rod.

Still further, there are a number of dependent claims that are clearly not taught or suggested within the teachings of the combined references. For example, claims 92-95 recite that the breakable capsule is in a fixed position within a cavity. Claim 93 specifically recites that the interior surface of an inner portion of a filter segment is roughened or tacky in order to hold the breakable capsule in the fixed position. There is absolutely nothing in any of the cited references to suggest roughening or rendering tacky the interior surface of the inner portion of the filter segment in order to hold a breakable capsule in a fixed position. Similarly, Claim 94 recites that the interior surface of the inner portion carries a coating of a plasticizer in order to render the surface tacky. There is nothing in any of the cited references that would suggest coating an interior surface of an inner portion of a filter segment in order to render the surface tacky so that it may hold a breakable capsule in a fixed position. Still further, Claim 95 recites that a breakable capsule is held in a fixed position by wedging the capsule against an inclined surface of a conical portion of a cavity. There is nothing in any of the cited references that suggest wedging a breakable capsule against an inclined surface of a conical portion of a cavity in order to hold the capsule in a fixed position. Still further, Claims 86 and 99 recite that the inner portion of a filter segment is a steam-bonded cellulose acetate tow. With respect to steam-bonding, the Examiner relies upon the teachings of the Arterbery reference. However, the Arterbery patent merely teaches that steam-bonding is a technique that can strengthen a cellulose acetate tow so that an additional external paper wrapper is not necessarily required. This cannot provide motivation to steam-bond an inner element of a filter that is encompassed by an outer cellulose acetate tow. If anything, such a teaching would only provide motivation to steam-bond an outer filter element as that element would be the element typically encompassed or enwrapped

by a paper wrapper. The inner element of a co-axial filter element does not need a paper wrapper at all. Accordingly, the teachings in Arterbery would be viewed as immaterial to an inner element. However, the inventors of the present invention have found that steam-bonding can be particularly beneficial when constructing the inner element of the preferred filter design. There is absolutely nothing in the cited art that would suggest forming the claimed filter arrangement wherein the inner portion is steam-bonded. If anything, the only motivation set forth in the cited art would be to steam-bond an outer filter segment so that a paper wrapper is not necessary. For at least the foregoing reasons, Applicants respectfully submit that numerous dependent claims are also separately patentable over the cited art.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

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